



# WSTIAC

## 2008 PEO/PM Symposium

### Weapon Systems Technology Information Analysis Center

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# Agenda

- WSTIAC Mission Statement
- WSTIAC Team
- Customers/Work Performed
- WSTIAC 10
- Technical Information Resources
- Providing Relevant Support to Acquisition Community
- Success Stories : Elec. Warfare, Capability Plan, SOPMOD
- Summary
- Q&A



# WSTIAC Mission

- **Mission**
  - Provide DoD and user communities with timely and authoritative information and technical expertise on key weapon systems related R&D concepts, results, trends, applications and processes, and assessment of international R&D technology with a focus on conventional and directed energy weapons science, technology, and acquisition.
  - Acquire, digest, analyze, evaluate, synthesize, store, publish and disseminate worldwide weapon systems STI and engineering data
  - Systems and subsystems from satellites to aircraft to ground combat vehicles to ships and submarines and more...
- **Vision Statement**
  - Transforming Weapon Systems Capabilities into Warfighter Superiority
  - WSTIAC as the premier provider of weapon systems technology knowledge, information, and technical expertise
- **Goals**
  - Aggressive information acquisition
  - Relevancy of information and technical expertise
  - Constant promotion of capabilities
  - Demonstrate and promote success stories
  - Strengthen Core activities (website, mailing list, metrics, newsletter)



# THE WSTIAC TEAM

## WSTIAC

### *Alion Science and Technology*

#### Large Businesses

BAE Systems  
Booz Allen and Hamilton  
CAS, Inc.  
Computer Science Corporation  
Colsa Corporation  
L-3 Communications  
Lockheed Martin  
Northrop Grumman  
SAIC  
SDS

#### Small Businesses

Andromeda Systems Inc.  
Ausgar Technologies, Inc.  
Engenuity, LLC  
JL Marshall and Associates  
Network and Simulation Technologies, Inc.  
Portland Tacoma Consulting, LLC  
RNB Technologies, Inc.  
Valkyrie Enterprises, LLC  
Wise Web Connections

#### Academic Institutions

Mississippi State University  
Ohio State University  
University of Central Florida  
University of Dayton Research Institute

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# Customers/Work Performed

## • Who are the WSTIAC Customers?

- Requirements developers/combatant organizations/operators
- Materiel developers (PMs)/acquisition community/contracting officers and their representatives
- Engineers and scientists

- AF Aeronautical Systems Center
- JFCOM
- ARDEC
- Picatinny PMs (PEO Ammo; PM CAS; PM CCS; PM MAS; PM - JS)
- USACOE

## • What is the Type of Work Performed?

- Requirements analysis
- Assessment of weapon systems technologies and capabilities
- Sustainability assessment
- Project management and business management expertise
- Independent reviews
- Provide engineering and scientific expertise



With the Purpose of:

- Supporting weapons-system development And Enhancement
- Enhancing lethality, accuracy & affordability
- Providing subject matter expertise for consultation and analysis to solve problems



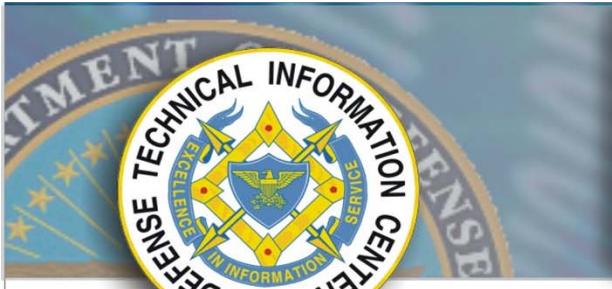
# “WSTIAC 10”

## Key Areas That WSTIAC Provides Capabilities...

- Power and Energy
- Lethality
- Weapon System Command and Control/Situational Awareness
- Non-Lethal
- Weapon Systems and Munition Readiness and Asset Visibility

- Target Identification and Engagement
- Asymmetric and Irregular Warfare Weapon Systems
- IED Defeat
- Embedded Training Systems
- Capabilities, Effectiveness, and Requirements Analyses

***WSTIAC 10: Critical Focus Areas Across All Services Related to Weapon Systems***



**WSTIAC**

# TECHNICAL INFORMATION RESOURCES



# Supporting the Warfighter with quick access to Scientific, Technical and Operational Information

WSTIAC Website <http://wstiac.alionscience.com>

- **Information Resource**
  - Over 97,000 records of scientific and technical information
  - WS library database search engine
  - Repository of 20,000 electronic report in the total electronic migration system (TEMS)
  - WS industry calendar of events
  - Related WS links
- **WSTIAC eNews**
  - Delivers the most up to date Weapons Systems information in real-time to user's desktop.

The complexity of modern weapon systems is such that no one component or technology can be addressed in isolation

The screenshot shows the homepage of the WSTIAC website. The top navigation bar includes links for IED Defeat, Target Identification &amp; Engagement, Lethality, Power &amp; Energy, Command &amp; Control, Asymmetric &amp; Irregular Warfare, Weapon Systems &amp; Munition Readiness &amp; Asset Visibility, Non-Lethal Weapons, Embedded Training Systems, Capabilities, Effectiveness &amp; Requirements Analysis, Scientists &amp; Engineers, Material Developers, Warfighters &amp; Combatant Commanders, and a search bar. The main content area features a large image of two silhouetted soldiers with the text "4 FREE HOURS Start Now" and a list of technologies: GPS, Smart Weapons, Miniaturization, Sensors &amp; Seekers, Weaponeering, High Energy Lasers, High-Power Microwaves, Directed Energy Weapons, Environment Protection, and Inertial Navigation Systems. Below this is a section about the IAC program, followed by a "It's like having your own team of experts." section. The footer includes links for IAC NEWS &amp; EVENTS, WSTIAC QUARTERLY, and a download link for the quarterly magazine. It also includes links for Past Issues and Free Subscription.



# WSTIAC Quarterly, Product & Publications

**Subscribe for free:** <http://wstiac.alionscience.com/subscribe>

- The WSTIAC Quarterly is delivered to over 18,000 DoD WS Professionals to provide the latest in Weapon Systems Technology.
  - The war against IEDs
  - Small caliber lethality
  - Disruptive technologies for weapon systems
- **WSTIAC Products & Service**
  - GENESIS SMART WEAPONS EVENT SIMULATOR
  - PROGRAM MANAGEMENT HANDBOOK ON NUCLEAR SURVIVABILITY – A guide for a program manager and members of a program management office (PMO) in the development and acquisition of nuclear survivable systems.
  - PRECISION GUIDED MUNITIONS HANDBOOK
  - INQUIRY SERVICES
- **Publications and SOARs**
  - ANTI-JAM GLOBAL POSITIONING SYSTEM TECHNOLOGY - STATE OF THE ART REPORT (SOAR).  
Fundamental features of GPS navigation for PGM applications, essential features of GPS signal reception, the potential jamming threat, and the main thrusts in electronic counter-countermeasures (ECCM) for an anti-jam GPS capability in current and future PGM systems





# WSTIAC Training Program Provides the Understanding Needed for Today's Warfighter

- Provides a firm understanding of information related to conventional and directed energy weapons, their development, and production
- Open and on site venues
- Expert instructors
- Most of the weapon systems training is performed on site and is tailored to meet targeted needs

## Training Courses

- Systems Engineering
- Directed Energy Weapons
- Smart/Precision Weapons
- Sensors/Seekers
- Weaponeering
- IEDs
- Customized Topics



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# Technical Weapon Systems Inquiry Service

Rapid Response to all your technical questions



***Get your technical challenges  
answered from WSTIAC!***

**Phone: (877) 978-8737  
Fax : (315) 339-7107  
E-mail: [WSTIAC@alionscience.com](mailto:WSTIAC@alionscience.com)**



- Bombs/missiles that operates at 1.5 microns
- Is the Latvian 120mm mortar NATO standard
- Environmental stress testing (EST) - power supplies
- Effects of high-powered rifle fire on infrastructures such as chemical storage containers, water towers, electrical transformers, grids, and oil components



# WSTIAC

## PROVIDING RELEVANT SUPPORT TO ACQUISITION COMMUNITY

Examples of contract work

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# Army Research Laboratory Experimental Fix (Ex-Fi) Program

- Program developed to enable the maturation of medium to high risk counter improvised explosive device (CIED) technologies
  - Design test facility
  - Implement automated test procedures
  - Develop data collection procedures
  - Conduct experimental tests on CIED systems
- Coordinate a plan to inform team members of critical events. The “team” will be comprised of representatives from the army, joint IED defeat organization (JIEDDO) and other organizations.





# Advanced Threat Infrared Countermeasures (ATIRCM)

- WSTIAC is considered the SME for all sustainability activities associated with the program
- WSTIAC is in process of setting up a failure rate reduction IPT for the program. WSTIAC will be the chair of the committee
- WSTIAC received customer recognition (a certificate of appreciation from the US army, PM-IRCM) for our reliability demonstration test support activities (January 2008)
- The program has been identified as a number one priority in army aviation and fielding of hardware is being accelerated. Fielding currently planned for 2010.





# Special Operations Engineering Team at Navy Crane (USSOCOM)

- Special operations weapons, munitions, enhanced optics and infrared targeting systems and visual augmentation systems
  - Identification, definition, and establishment of technical requirements
  - Test and evaluation data collection
  - Manufacturing processes and problem resolution
  - Design and analysis of system software and computerized data collection
  - Operational serviceability
  - Cost benefit analyses



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# WSTIAC

## Success Stories



# Electronic Warfare (EW) Capability Planning, Development and Analysis

Customer: Air Force Materiel Command

- Objectives
- Provide the Air Force Materiel Command with technical analysis and assistance with EW planning, development, acquisition and analysis.
- Help the Command mature critical sensor technology and guide system design needed to support the required warfighter capability.
- Provide decision support analyses for program new-starts, system modifications, & significant changes in DOTMLPF



## Affordable Investment Decisions for World Class EW Capability

### • Tasks

- Integrated roadmap and investment strategy development
- Strategic analyses for EW and Information Operations (IO) capability development
- Scientific and engineering support
- Senior level aerospace program management expertise
- Program documentation Knowledge management of AF EW systems & capabilities
- Facilitation of technology transfer
- Modeling, Simulation and Analysis specific to EW, IO, and Combat Identification (CID)

### • Accomplishments

- Designed an AF-level EW business plan to address operating concepts and best practices.
- Provided executive-level awareness presentations to key Air Force (AF) leaders regarding EW capabilities and shortfalls to guide requirements development and AF investments.
- Guided the design & development of the new automated knowledge management system (Spiral 0), the foundation of the AF EW Roadmap and a centralized source for future EW study efforts.
- Focused Combat Identification (CID) developmental risks, concepts & issues for executive action.

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# Capability Development Planning

Customer: AF Aeronautical Systems Center

- Objectives
- Provide critical link between desired warfighter capabilities and the acquisition of those capabilities
- Support the definition of future capability needs
- Define and evaluate alternative concepts
- Recommend preferred concepts
- Identify technology and risk drivers
- Define life cycle costs and issues
- Develop executable acquisition strategies
- Transition the capability development effort
- Manage and execute the capability development effort.



## Assess and Develop Future Capabilities in Support of Early Acquisition Planning

- Tasks
- Provide Pre-Acquisition planning support
- Develop technology strategies and transfer plans
- Collect data and analyze weapon system performance
- Review and recommend policy revisions
- Develop integrated change roadmaps
- Develop affordable architecture migration plans
- Review and identify fleet total ownership costs
- Develop Modeling, Simulation, and Analysis (MS&A) methodologies and provide MS&A technical support
- Develop cost benefit analysis

- Accomplishments
- Developed the Technology Development Strategy for the Next Generation Long Range Strike (NGLRS) capability development effort
- Developed the NGLRS Courses of Action
- Drafted the NGLRS Life Cycle Management Plan
- Drafted the Joint Tactical Control Training and Rehearsal Systems (JTC TRS) Performance Specification
- Developed the effectiveness analysis approach and draft study plan for the Presidential Airlift Recapitalization Analysis of Alternatives

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# Special Operations Peculiar Modification SOPMOD

Customer: US SOCOM Navy Crane

## •Objective

The Special Operations Peculiar Modification (SOPMOD) Program Management Office (PMO) at NSWC Crane is providing standardized, versatile weapons accessories to meet needs across SOF mission scenarios. These accessories increase operator survivability and lethality by enhanced weapon performance, target acquisition, signature suppression, and fire control. The SOPMOD PMO provides these accessories when they are operationally suitable, affordable, sustainable, and funded. There is a need for engineering analyses and process analyses to assure the new technology enhancements are implemented in an expedient manner. There are a broad number of technical issues that impact the SOPMOD Program.

## SOPMOD M4 Accessory Kit



## Supporting the Warfighter by Providing an Enhanced Asymmetrical Advantage

### •Tasks

- Perform engineering analysis on materials, mechanical, and electronic areas to support the development of advanced weapons systems accessories.
- Perform Manufacturers assessments to ensure the capability to provide sustained life cycle support.
- Research and analyze system requirements of SOPMOD accessories. Use research to provide templates for data collection and analysis.
- Perform data collection and analysis on user assessments

### •Accomplishments

- Completed Data collection tool for the Weapons Shot Counter.
- Performed (5) Manufacturers evaluations to determine possible root cause of equipment failures.
- Collected data generated during the ECOS-GL Shoot with 2<sup>nd</sup> Battalion/75<sup>th</sup> Ranger Regiment.
- Briefed the history of suppression during the SOPMOD IPTs.
- Developed a Technology Transition process to provide a method to enhance current weapon accessory capability through the integration of emerging technologies.

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# Summary

- WSTIAC provides weapon systems technology information and technical expertise
- “WSTIAC 10” summarizes the key strategic areas that WSTIAC provides support
- Extensive weapon systems technology database
- Large number of subject matter experts to assist you with your needs

***Through WSTIAC, Can Get You The Expertise and Capabilities You Need Quickly and Effectively!***



# WSTIAC

## Q&A

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